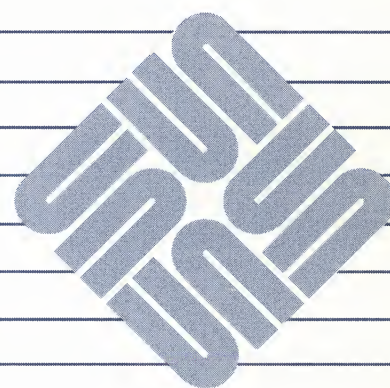




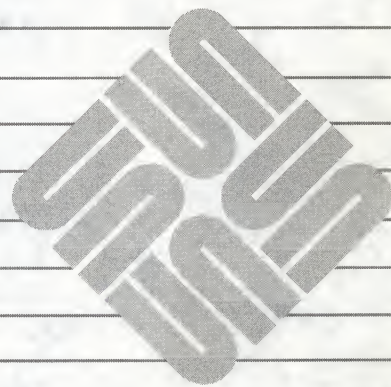
Cardcage Slot Assignments and Backplane Configuration Procedures for Sun 4/200 Systems with Double-Height Backpanels








Cardcage Slot Assignments and Backplane Configuration Procedures for Sun 4/200 Systems with Double-Height Backpanels



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Slot Assignment Precautions

CAUTION

Springfingers are metal strips that are installed between the edge of the PC board and the outer panel to reduce RFI emissions. Serrated metal "fingers" protrude from either side of the strip.

Installation of a board **WITHOUT** springfingers may affect RFI emissions and may therefore affect FCC compliance. Sun will no longer be responsible for FCC compliance if non-springfingered boards are added to a system originally shipped **WITH** springfingers and FCC approval.

If a board **WITH** springfingers is installed next to a board **WITHOUT** springfingers, the insulator shield on the outside of the fingers **MUST** be present to prevent possible shorting of component leads to the springfingers.

If a logic enclosure contains boards **WITH** and **WITHOUT** springfingers, use the following guidelines:

- Before removing a board **WITHOUT** springfingers, remove the board to the left of it (or below it for desktop models) if that board is equipped **WITH** springfingers and an outer insulator shield.
- To replace any filler panel equipped **WITH** springfingers, pull out the air restrictor panel far enough to allow the springfingers to lay against the panel. Push both units into place simultaneously and fasten with the appropriate fasteners. This procedure makes replacement of the filler panels easier and reduces the chance of damage to the springfingers.
- Always install a board **WITHOUT** springfingers first, and then replace the board **WITH** springfingers and insulator shield in the slot to the left of it (or below it).

If a board **WITH** springfingers is installed next to a board or filler panel also equipped **WITH** springfingers, the outside insulator shields should be removed.

Ensure that the insulator strip between the inner side of the springfingers and the PC board is intact at all times.

When removing and replacing boards with springfingers, check the condition of the insulator strip/shield(s) and replace if damaged.

Call 800-USA-4SUN with questions or for information on how to obtain additional insulator strips or shields.

Printed circuit boards contain components sensitive to damage from electrostatic discharge that may occur, for example, when you walk across a carpet and then touch the board. If a grounding device is available, wear it when handling the board. Otherwise, place your hand on a conductive surface that is grounded to a common earth ground (such as the metal screw or plate on the AC wall receptacle), to discharge any static electricity from your body before handling the board.

1

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Sun-4/260X With Double-Height Backpanel

Table 2-1 Sun-4/260X with Double-Height Backpanel

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P			Φ	#	#	#					#	#	#
X	X		1	2	3	4	5	6	7	8	9	1	1	1
0	0											0	1	2
3	4													
OUT	OUT	Sun 4200 CPU Board†	A											
IN	IN	1st Sun Memory Board@†						A						
IN	IN	2nd Sun Memory Board@†					A							
IN	IN	3rd Sun Memory Board@†				A								
IN	IN	4th Sun Memory Board@†			A									
OUT	OUT	Sun GP †V										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A**	501-1157 Sun ALM-1 ** #											**	A
OUT	OUT	Sun VME SCSI Board†							A					
OUT	OUT	1st 501-1221 Sun MCP *∞			A	B	C		D	E				
OUT	OUT	2nd 501-1221 Sun MCP *∞				A	B		C	D	E			
OUT	OUT	3rd 501-1221 Sun MCP *∞					A		B	C	D	E	F	G
OUT	OUT	4th 501-1221 Sun MCP *∞							A	B	C	D	E	F
OUT	OUT	1st 501-1203 ALM-2 ∞			A	B	C		D	E	F	G	H	I
OUT	OUT	2nd 501-1203 ALM-2 ∞				A	B		C	D	E	F	G	H
OUT	OUT	3rd 501-1203 ALM-2 ∞					A		B	C	D	E	F	G
OUT	OUT	4th 501-1203 ALM-2 ∞							A	B	C	D	E	
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂			A	A			C	C	E	E	G	G
					B	B				D	D	F	F	

Table 2-1 Sun-4/260X with Double-Height Backpanel—Continued

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P													
X	X		Φ	#	#	#						#	#	#
0	0		1	2	3	4	5	6	7	8	9	0	1	1
3	4													2
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *ð							A	A	C	C	E	E
§	§	1st 501-1202 MAPKIT§*			A	A			C	C	E	E	G	G
					B	B			D	D	F	F		
§	§	2nd 501-1202 MAPKIT§*							A	A	C	C	E	E
									B	B	D	D		
OUT	OUT	501-1153 2nd Ethr Ctlr €#			A	B	C		D	E	F	G	H	I
IN	OUT	1st Sun IPC*†			A	B	C		D	E	F	G	H	I
IN	OUT	2nd Sun IPC*†				A	B		C	D	E	F	G	H
IN	OUT	3rd Sun IPC*†					A		B	C	D	E	F	G
IN	OUT	4th Sun IPC*†							A	B	C	D	E	F
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ							A	B	C	D	E	F
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ								A	B	C	D	E
OUT	OUT	1st SMD Ctlr†#&							A	B	C	D	E	F
OUT	OUT	2nd SMD Ctlr†#&								A	B	C	D	E
IN	OUT	Sun VME Color †V			A	B	C		D	E	F	G	H	I

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use Table 3-1 — *Sun-4/280S with Double-Height Backplane*.

GENERAL NOTES: This table vertically lists PCB slot priority assignments for the Sun-4/260C/260HM/260G/260S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is left-most and slot 12 is right-most when viewing the pedestal from the side where the boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02. "X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.

5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.
6. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
 - Part number 501-1170 includes the 501-1191 Sun-3 3X2 VME Adapter board and the 501-1236 SCSI-3 Host Adapter board for the 12-slot pedestal. Part number 501-1170 is available for Sun-3 and Sun-4 systems.
 - Part number 501-1149 includes the 501-1059 Sun-2 3X2 VME Adapter board and the 501-1045 SCSI-2 Host Adapter board for the 12-slot pedestal. Part number 501-1049 is a valid alternative when transferred from another system, but is not available when ordering new Sun-4 systems.

These notes refer to symbols, such as “†” or “‡”, on the slot assignment table for the Sun-4/260C/260HM/260G/260S.

∞ Important Notes about ALM and MCP products:

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products*.

Φ The Sun 4200 CPU board occupies two cardcage slots. To install a CPU do one of the following:

1. Remove any board already residing in slot 2. Jumpers are required in locations P203 and P204 on the backplane.
2. If slot 2 is empty, remove its blank filler panel and air restrictor.

∂ Important Cautions about the SunLink Channel Adapter:

1. Each Channel Adapter assembly occupies two slots. The BG3 and IACK backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ For Sun Memory Boards:

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3,4, or 5: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

€ The “2nd Ethr Ctlr” board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

§ Notes about the MAPKIT option:

1. Each MAPKIT option occupies two slots. The “BG3” and “IACK” jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

▽ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

▽ **When installing the 501-1267 Sun VME Color Board (CG5) with the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which **MUST BE ENABLED** on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
3. Since the 501-1157 Sun ALM-1 consumes two slot spaces (slots 11 and 12), it cannot be used with any multiple board graphics options.

▽ **When installing the 501-1267 Sun VME Color Board (CG5) without the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 **MUST BE** installed in slots 2-9 only.
2. The CG5 board **MUST HAVE** its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series systems. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

**** Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:**

1. REMOVE any board already residing in slot 11 and install jumpers at locations P1103 and P1104 on the backplane;
2. REMOVE any outside filler panel(s) covering slots 11 and 12;
3. REMOVE any air restrictors installed in these slots.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, **TO INSTALL IT, YOU MUST REMOVE** any boards already residing in slots 10, 11, and 12, and install jumpers at locations P1103, P1104, and P1203 on the backplane.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 3 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product, you MUST USE adapter board subassembly Revision 501-1054-04, Rev A (Sept. 1985) or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

† These boards have one of the following descriptions:

501-1274 4200 CPU with FPU
501-1491 4200 CPU with FPU2

501-1102 8MB Memory Board
501-1254 32MB Memory Board

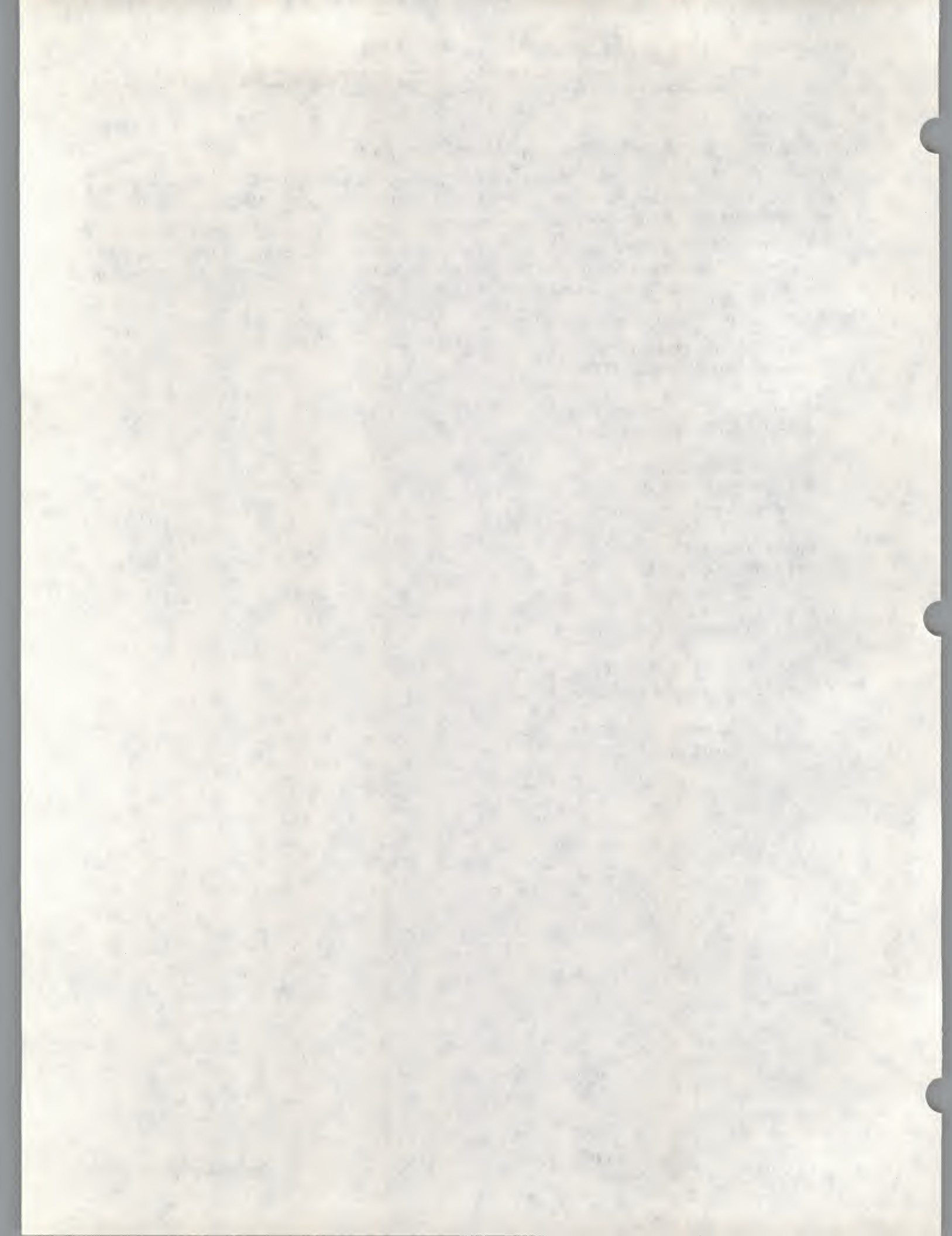
501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1149 Sun-2 SCSI Ctlr.
501-1170 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1125 Sun IPC (without 80287)
501-1214 Sun IPC (with 80287)



Sun-4/280 Products

3.1. Sun-4/280S With Double-Height Backpanel

NOTE This table is for all configurations except those using the 501-1167 Sun-2 SCSI Controller (see the table in the next subsection). Reference Appendix C for details concerning SCSI Adapters.

Table 3-1 Sun-4/280S with Double-Height Backplane

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P													
X	X													
0	0													
3	4													
			1	2	3	4	5	6	7	8	9	10	11	12
OUT	OUT	Sun 4200 CPU Board†V	A											
IN	IN	1st Sun Memory Board@						A						
IN	IN	2nd Sun Memory Board@			A									
IN	IN	3rd Sun Memory Board@				A								
IN	IN	4th Sun Memory Board@					A							
OUT	OUT	Sun GP †V										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1**#∞												A
OUT	OUT	2nd 501-1165 Sun ALM-1**#∞											A	
OUT	OUT	3rd 501-1165 Sun ALM-1**#∞										A		
OUT	OUT	1st 501-1221 Sun MCP *∞			A	B	C		D					
OUT	OUT	2nd 501-1221 Sun MCP *∞				A	B		C	D				
OUT	OUT	3rd 501-1221 Sun MCP *∞					A		B	C	D			
OUT	OUT	4th 501-1221 Sun MCP *∞						A	B	C	D	E	F	

Table 3-1 Sun-4/280S with Double-Height Backplane—Continued

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P													
X	X		Φ	#	#	#					#	#	#	
0	0		1	2	3	4	5	6	7	8	9	0	1	1
3	4													2
OUT	OUT	1st 501-1203 ALM-2 ∞			A	B	C		D	E	F	G	H	I
OUT	OUT	2nd 501-1203 ALM-2 ∞				A	B		C	D	E	F	G	H
OUT	OUT	3rd 501-1203 ALM-2 ∞					A		B	C	D	E	F	G
OUT	OUT	4th 501-1203 ALM-2 ∞							A	B	C	D	E	F
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂			A	A			C	C	E	E	G	G
					B	B				D	D	F	F	
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂							A	A	C	C	E	E
										B	B	D	D	
§	§	1st 501-1202 MAPKIT§*			A	A			C	C	E	E	G	G
					B	B				D	D	F	F	
§	§	2nd 501-1202 MAPKIT§*							A	A	C	C	E	E
										B	B	D	D	
OUT	OUT	Sun VME SCSI Ctlr †			A	B	C		D	E	F	G	H	I
IN	OUT	Sun VME Color †∇			A	B	C		D	E	F	G	H	I
OUT	OUT	501-1153 2nd Ethr Ctlr €#			A	B	C		D	E	F	G	H	I
IN	OUT	1st Sun IPC*†				D	E		A	B	C	F	G	H
IN	OUT	2nd Sun IPC*†			C	D	E			A	B	F	G	H
IN	OUT	3rd Sun IPC*†			B	C	D				A	E	F	G
IN	OUT	4th Sun IPC*†			A	B	C					D	E	F
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ			A	B	C		D	E	F	G	H	I
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ				A	B		C	D	E	F	G	H
OUT	OUT	1st SMD Ctlr#†&			A	B	C		D	E	F	G	H	I
OUT	OUT	2nd SMD Ctlr#†&				A	B		C	D	E	F	G	H

FOR SYSTEMS WITHOUT A SUN SCSI OPTION: If your system DOES NOT have SCSI Adapter, please use this table.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02. "X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
 - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
 - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.
 See Appendix C for additional SCSI adapter information.

These notes refer to symbols, such as “†” or “‡”, on the slot assignment table for the Sun-4/280S with 501-1191 Adapter.

∞ Important Notes about ALM and MCP products:

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products*.

∂ Important Cautions about the SunLink Channel Adapter:

1. Each Channel Adapter assembly occupies two slots. The BG3 and IACK backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ For Sun Memory Boards:

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3,4, or 5: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 3 THROUGH 5: If you wish to install a “VME-to-Multibus Adapter Board” based product, you MUST USE adapter board subassembly Revision 501-1054-04, Rev A (Sept. 1985) or later to avoid signal contention on the “P2 Memory” bus.

2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.
- * Consult your Sun sales office concerning software considerations for and availability of this unbundled product.
 - ‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.
 - € The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.
 - § **Notes about the MAPKIT option:**
 1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
 2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.
 - ∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.
 - 501-1058 Graphics Buffer
 - 501-1116 Sun-3 Color Board (CG3)
 - 501-1014 Sun-2 Color Board
 - ∇ **When installing the 501-1267 Sun VME Color Board (CG5) with the 501-1268 Graphics Processor 2 (GP2) installed:**
 1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
 2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
 - ∇ **When installing the 501-1267 Sun VME Color Board (CG5) without the 501-1268 Graphics Processor 2 (GP2) installed:**
 1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
 2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is not installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
 - & Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun 4200 CPU based system. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1274 4200 CPU with FPU
501-1491 4200 CPU with FPU2

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1125 Sun IPC (without 80287)
501-1214 Sun IPC (with 80287)

3.2. Sun-4/280S With Double-Height Backpanel and Sun-2 501-1167 SCSI Adapter

Table 3-2 Sun-4/280S with Double-Height Backpanel and Sun-2 501-1167 SCSI Adapter

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P X 0 3	P X 0 4			Φ	#	#	#					#	#	#
			1	2	3	4	5	6	7	8	9	0	1	2
OUT	OUT	Sun 4200 CPU Board†	A											
IN	IN	1st Sun Memory Board@†						A						
IN	IN	2nd Sun Memory Board@†			A									
IN	IN	3rd Sun Memory Board@†				A								
IN	IN	4th Sun Memory Board@†					A							
OUT	OUT	Sun GP †V										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1***#												A
OUT	OUT	2nd 501-1165 Sun ALM-1***#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1***#										A		
OUT	OUT	501-1167 Sun-2 VME SCSI Ctlr ++							A					
OUT	OUT	1st 501-1221 MCP Board *∞			A	B	C			D				
OUT	OUT	2nd 501-1221 MCP Board *∞				A	B			C	D			
OUT	OUT	3rd 501-1221 MCP Board *∞					A			B	C	D	E	F
OUT	OUT	4th 501-1221 MCP Board *∞								A	B	C	D	E
OUT	OUT	1st 501-1203 ALM-2 Board ∞			A	B	C			D	E	F	G	H
OUT	OUT	2nd 501-1203 ALM-2 Board ∞				A	B			C	D	E	F	G
OUT	OUT	3rd 501-1203 ALM-2 Board ∞					A			B	C	D	E	F
OUT	OUT	4th 501-1203 ALM-2 Board ∞								A	B	C	D	E
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂			A	A B	B			C	C D	E D	E F	F
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂								A	A B	C B	C D	D
§	§	1st 501-1202 MAPKIT§*			A	A B	B			C	C D	E D	E F	F
§	§	2nd 501-1202 MAPKIT§*								A	A	C	C	

Table 3-2 Sun-4/280S with Double-Height Backpanel and Sun-2 501-1167 SCSI Adapter—Con.

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P X 0 3	P X 0 4		1	2	3	4	5	6	7	8	9	0	1	2
											B	B	D	D
IN	OUT	Sun Color†V			A	B	C			D	E	F	G	H
OUT	OUT	501-1153 2nd Ethr Ctlr €#			A	B	C			D	E	F	G	H
IN	OUT	1st Sun IPC*†			A	B	C			D	E	F	G	H
IN	OUT	2nd Sun IPC*†				A	B			C	D	E	F	G
IN	OUT	3rd Sun IPC*†					A			B	C	D	E	F
IN	OUT	4th Sun IPC*†								A	B	C	D	E
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ								A	B	C	D	E
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ									A	B	C	D
OUT	OUT	1st SMD Ctlr#&†								A	B	C	D	E
OUT	OUT	2nd SMD Ctlr#&†									A	B	C	D

GENERAL BOARD INSTALLATION NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S, with the Sun-2 501-1059 Adapter, in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board **MUST** be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

- Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
- FOR ALL SLOTS:** Install backplane jumpers in locations PX00, PX01 and PX02. "X" represents the slot number.
- TO INSTALL ANY BOARD:** Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
- TO REMOVE ANY BOARD:** Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
- The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. The Adapters have the following descriptions:
 - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
 - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

See Appendix C for additional SCSI adapter information.

These notes refer to symbols, such as “†” or “‡”, on the slot assignment table for the Sun-4/280S with the 501-1059 Adapter.

++ The Adapter for the 501-1167 Sun-2 SCSI Ctlr has both P2 and external cable connections. Sun is not supporting the Sun-3 SCSI Ctlr on this type of Adapter.

Φ The Sun 4200 CPU board occupies two cardcage slots. To install a CPU do one of the following:

1. Remove any board already residing in slot 2. Jumpers are required in locations P203 and P204 on the backplane.
2. If slot 2 is empty, remove its blank filler panel and air restrictor.

∞ Important Notes about ALM and MCP products:

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products*.

∂ Important Cautions about the SunLink Channel Adapter:

1. Each Channel Adapter assembly occupies two slots. The BG3 and IACK backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ For Sun Memory Boards:

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270 Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3 or 4: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

€ The “2nd Ethr Ctlr” board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 3 THROUGH 5: If you wish to install a “VME-to-Multibus Adapter Board” based product, you MUST USE adapter board subassembly Revision 501-1054-04, Rev A (Sept. 1985) or later to avoid signal contention on the “P2 Memory” bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a “VME to Multibus Adapter Board” based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the “GP/GB” bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the

backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

▽ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
 501-1116 Sun-3 Color Board (CG3)
 501-1014 Sun-2 Color Board

▽ **When installing the 501-1267 Sun VME Color Board (CG5) with the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

▽ **When installing the 501-1267 Sun CG5 Color Board without the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is not installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processors are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun 4200 CPU. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1274 4200 CPU with FPU
501-1491 4200 CPU with FPU2

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1125 Sun IPC (without 80287)
501-1214 Sun IPC (with 80287)

3.3. Sun-4/280S With Double-Height Backpanel and Reserved Slots

Table 3-3 Sun-4/280S with Double-Height Backpanel and Reserved Slots

Note: This table reserves slots 7, 8 and 9 for non-Sun boards that use signals on the "P2" bus. This table does not apply for systems that use a 501-1167 Sun-2 SCSI Controller.

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P			Φ	#	#	#					#	#	#
X	X		1	2	3	4	5	6	7	8	9	10	11	12
0	0													
3	4													
OUT	OUT	Sun 4200s-2CPU Board†V	A											
IN	IN	1st Sun Memory Board@						A						
IN	IN	2nd Sun Memory Exp@			A									
IN	IN	3rd Sun Memory Exp@				A								
IN	IN	4th Sun Memory Exp@					A							
OUT	OUT	Sun GP †V										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1#												A
OUT	OUT	2nd 501-1165 Sun ALM-1#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1#										A		
OUT	OUT	1st 501-1221 Sun MCP *∞			A	B	C					D	E	F
OUT	OUT	2nd 501-1221 Sun MCP *∞				A	B					C	D	E
OUT	OUT	3rd 501-1221 Sun MCP *∞					A					B	C	D
OUT	OUT	4th 501-1221 Sun MCP *∞										A	B	C
OUT	OUT	1st 501-1203 ALM-2 Board ∞			A	B	C					D	E	F
OUT	OUT	2nd 501-1203 ALM-2 Board ∞				A	B					C	D	E
OUT	OUT	3rd 501-1203 ALM-2 Board ∞					A					B	C	D
OUT	OUT	4th 501-1203 ALM-2 Board ∞										A	B	C
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂			A	A	B					C	C	
						B	B						D	D
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂										A	A	
												B	B	B
§	§	1st 501-1202 MAPKIT§*			A	A	B					C	C	
						B	B						D	D
§	§	2nd 501-1202 MAPKIT§*										A	A	
												B	B	B
OUT	OUT	VME SCSI Ctlr†			A	B	C					D	E	F
IN	OUT	Sun VME Color †V			A	B	C					D	E	F

Table 3-3 Sun-4/280S with Double-Height Backpanel and Reserved Slots—Continued

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION											
BG3	IACK													
P	P													
X	X													
0	0													
3	4		1	2	3	4	5	6	7	8	9	10	11	12
OUT	OUT	501-1153 2nd Ethr Ctlr € #			A	B	C					D	E	F
IN	OUT	1st Sun IPC*†			A	B	C					D	E	F
IN	OUT	2nd Sun IPC*†				A	B					C	D	E
IN	OUT	3rd Sun IPC*†					A					B	C	D
IN	OUT	4th Sun IPC*†										A	B	C
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ			A	B	C					D	E	F
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ				A	B					C	D	E
OUT	OUT	1st SMD Ctlr#†&			A	B	C					D	E	F
OUT	OUT	2nd SMD Ctlr#†&				A	B					C	D	E

GENERAL BOARD INSTALLATION NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S, with slots 7,8 and 9 reserved for non-Sun boards, in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

- Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
- FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02. "X" represents the slot number.
- TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
- TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
- The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
 - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
 - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

See Appendix C for additional SCSI adapter information.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/280S with slots 7, 8, and 9 reserved for non-Sun boards.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products*.

Φ **The Sun 4200 CPU board occupies two cardcage slots. To install a CPU do one of the following:**

1. Remove any board already residing in slot 2. Jumpers are required in locations P203 and P204 on the backplane.
2. If slot 2 is empty, remove its blank filler panel and air restrictor.

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3 or 4: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

€ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 3 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product, you MUST USE adapter board subassembly Revision 501-1054-04, Rev A (Sept. 1985) or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.
- ▽ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.
- 501-1058 Graphics Buffer
 - 501-1116 Sun-3 Color Board (CG3)
 - 501-1014 Sun-2 Color Board
- ▽ **When installing the 501-1267 Sun VME Color Board (CG5) with the 501-1268 Graphics Processor 2 (GP2) installed:**
1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which **MUST BE ENABLED** on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
 2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
- ▽ **When installing the 501-1267 Sun VME Color Board (CG5) without the 501-1268 Graphics Processor 2 (GP2) installed:**
1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board **MUST BE** installed in slots 2-9 only.
 2. The CG5 board **MUST HAVE** its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is not installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
- & Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.
- Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1274 4200 CPU with FPU
501-1491 4200 CPU with FPU2

501-1102 8MB Memory Board
501-1254 32MB Memory Board

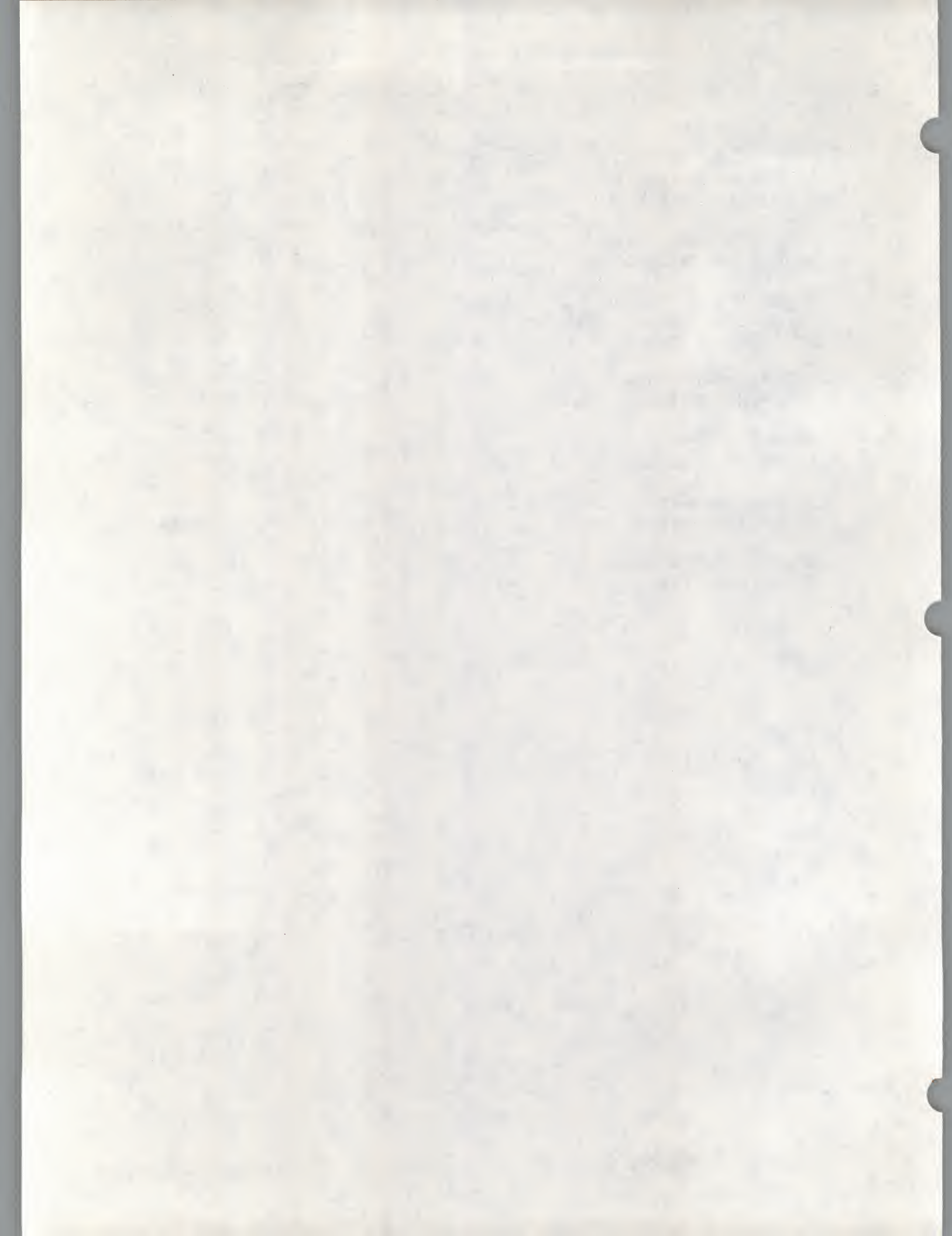
501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1125 Sun IPC (without 80287)
501-1214 Sun IPC (with 80287)



A

Notes Regarding the ALM-2 and MCP Products

A.1. Caution - Using the ALM-2 with the MCP or ALM-1

The ALM-2 shares VME vector interrupt assignments with the ALM-1 and the MCP. The ALM-2 also shares VME address space with the MCP. Because of these possible conflicts, and a possible physical space restriction in the Rack product, the following rules must be applied when installing an ALM-2 into a system that also contains MCPs and ALM-1s.

Rack Physical Space Restriction Rule

If three ALM-1s (with their associated mux boxes) are already installed into the rear of the Rack, there will be no room to mount the ALM-2's Device Connector Assembly (DCA). If this is the case in your installation, there are instructions in the Installation Manual for mounting the ALM-2's DCA to the floor or wall. This is permitted.

VME Vector Interrupt Conflict

The ALM-2 and the MCP share the *exact same* vector interrupt assignments. The ALM-1 has vector interrupt assignments that are in *conflict* with the ALM-2 (and the MCP). The following Table shows the assignments and illustrates the possible conflict.

A.2. Vector Interrupt Table

Table A-1 ALM-2 MCP and ALM-1 Vector Interrupt Assignments

ALM-2 MCP and ALM-1 Vector Interrupt Assignments			
Installed Board	Device Entry Number	VME Vector Interrupt Assignment (Hexadecimal)	
		ALM-1	ALM-2 and MCP
1st Board	Ø	88	8b
2nd Board	1	89	8a
3rd Board	2	8a	89
4th Board	3	8b	88

As you can see from the Table, the vector interrupt assignments of the ALM-1 and ALM-2 are in the exact opposite order, and the vector interrupt assignments of the

ALM-2 and the MCP are the same. This makes the following rules necessary.

Rule One

No more than four ALM-1, ALM-2 or MCP boards *altogether* may be installed in a single cardcage. This *does not* mean four of each kind, it means four boards *total*.

If you look at the preceding Table closely, you will see that if more than four boards were installed, two of the boards would have identical vector interrupt assignments. This will cause duplication errors of assigned vector interrupts.

Rule Two

When installing the Sun ALM-2 or MCP, the boards *must* be installed in proper address order. There are four VME board address positions available that can accommodate either the Sun ALM-2 or MCP board. Therefore, one address position can only accommodate one board type, and any MCP or ALM-2 must be installed in the proper board device sequence:

1st board (MCP or ALM-2)	Device Ø
2nd board (MCP or ALM-2)	Device 1
3rd board (MCP or ALM-2)	Device 2
4th board (MCP or ALM-2)	Device 3

NOTE Refer to the specific ALM-2 or MCP Configuration Procedure for information on board device addressing.

For example, if you had two MCP boards already installed (1st and 2nd Sun MCP boards) and you then wanted to install two Sun ALM-2 boards, you would need to configure and install the two ALM-2 boards as the 3rd and 4th ALM-2 boards respectively. This address order is exclusive of the Sun ALM-1 board addressing. This rule also applies if MCP boards are to be added to a system already containing ALM-2 boards.

NOTE For information on ALM-1 board addressing, refer to the ALM-1 Configuration Procedure (Sun P/N 813-2008) for information on setting/verifying the ALM-1 board address.

Rule Three

When installing the Sun ALM-1, it must be installed in the proper sequential board address order: with the first board installed as the 1st Sun ALM-1 and so forth. For Deskside systems that support the ALM-1, only one ALM-1 board can co-reside with the MCP and/or ALM-2 boards. The address order for the ALM-1 is exclusive of the Sun ALM-2 or MCP addressing.

It is necessary to refer to the next subsection, *VME Address Conflict*, to understand the sharing of VME address space of the ALM-2 and MCP boards and determine their correct cardcage slot assignment. The ALM-1 does not share VME address space with the ALM-2 or MCP; therefore, its slot assignment is independent of the ALM-2 or MCP.

VME Address Conflict

The ALM-2 and MCP boards occupy the identical VME address space as well as interrupt vectors, and both are known to the CPU as mcp x (where x is a number 0 through 3). So, for example, if two MCP boards are already present in the cardcage and you wish to add an ALM-2, the ALM-2 would be designated as mcp2 in the VME addressing (with the two MCP boards being designated mcp0 and mcp1 respectively).

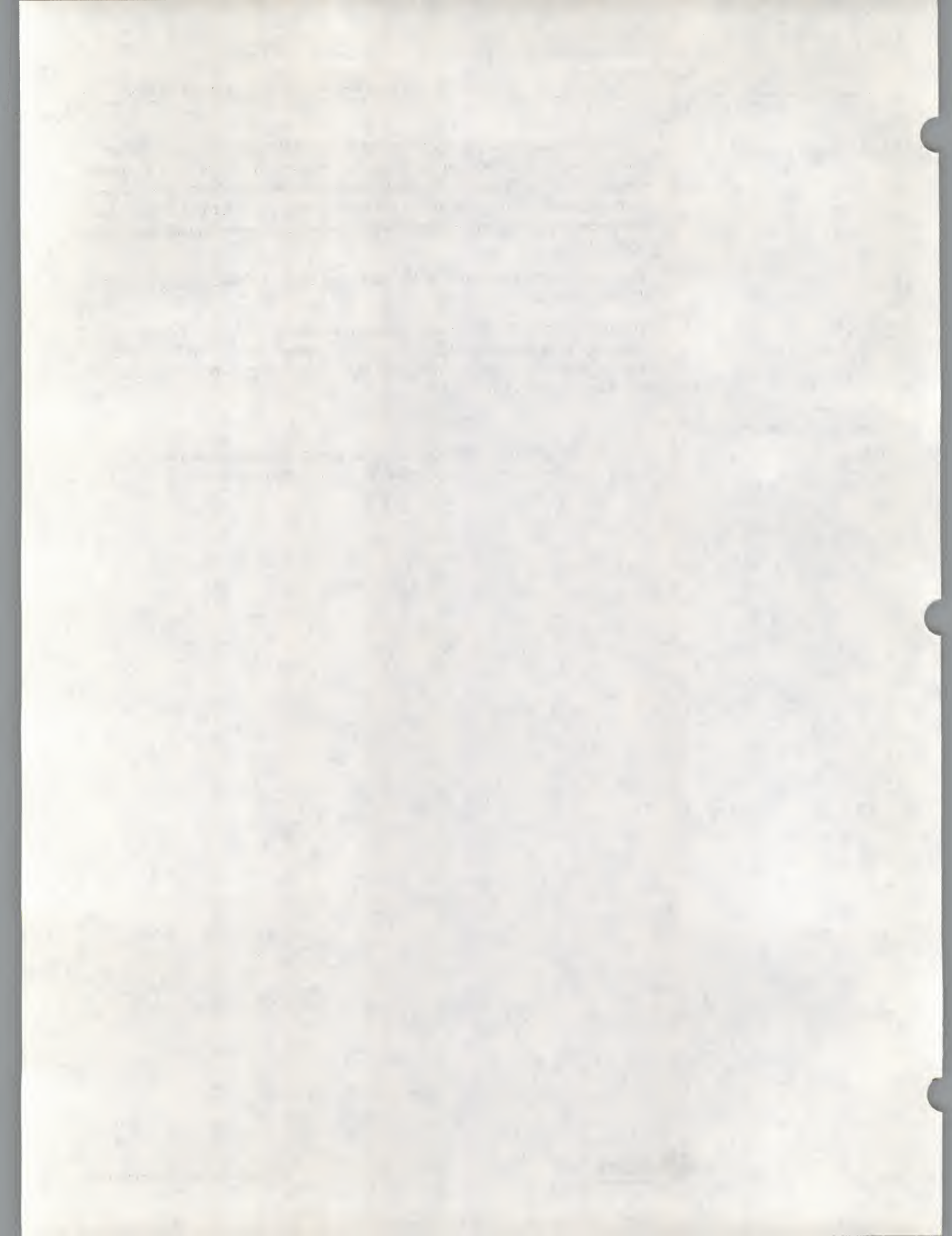
Rule 4

The ALM-2 and MCP must not be installed using identical VME addresses (board device numbers).

The ALM-2 board number (VME Address) is hardware selected on the board. If necessary, refer to the ALM-2 Configuration Procedure (Sun P/N 813-2042-XX) for information on setting/verifying the ALM-2 board address (board *address* selection is identical for the MCP).

Deskside System Restrictions**Rule Five**

For Deskside systems that support the ALM-1, only one ALM-1 board may co-reside in the Deskside cardcage with ALM-2 and MCP boards.



B

How to Read the Cardcage Slot Assignment and Backplane Configuration Tables

Table B-1 *Generic Cardcage Table*

BACKPLANE JUMPERS		BOARD NAME	BACKPLANE SLOT POSITION					
BG3	IACK							
P	P			#	#	#	#	#
X	X							
0	0							
3	4		1	2	3	4	5	6
OUT	OUT	CPU Board	A					
IN	IN	1st Memory Expansion Board		A				
IN	IN	FPA Board				A		
IN	IN	2nd Memory Expansion Board			A			
IN	IN	3rd Memory Expansion Board				A		
OUT	OUT	Graphics Processor					A	
IN	IN	Graphics Buffer						A
OUT	OUT	VME SCSI Ctlr		A	B	C	D	E
IN	OUT	VME Color		A	B	C	D	E
OUT	OUT	2nd Ethernet Ctlr		A	B	C	D	E

This table is for illustration purposes only. It should not be used to place boards in any Sun systems you might have.

This example table shows that these particular ten products have been qualified by Sun as possible entries into this hypothetical six-slot cardcage. The products are listed in a vertical column *in the order that they must be inserted into the cardcage*. The following example places six of the ten possible products into the allowable slots according to assigned priority.

B.1. Example Board Placement

Suppose you have the following six boards to be inserted into this six-slot cardcage:

CPU board
 SCSI board
 2 Memory Expansion boards
 Floating Point Accelerator (FPA) board
 2nd Ethernet Controller board

Compare the boards you have with the boards listed in the *Generic Cardcage Table*. The boards will be assigned in the vertical order that they occur in the table. If they are not placed in the given descending order, the system may lose performance or functionality.

First

CPU board in slot 1: The letter A in slot 1 indicates that the only position for the CPU is in slot 1.

Second

1st memory board in slot 2: The letter A in slot 2 indicates that the only position for the 1st memory board is in slot 2.

Third

FPA in slot 4: The FPA is the next item in the table, so it must be placed before the 2nd memory board. The FPA must be placed in slot 4. Note that if you had a 3rd memory board and an FPA, then you would have placed the FPA in slot 4 only to discover that the 3rd memory board should also be placed in slot 4. According to the rules of precedence, since the 3rd memory board is listed two places lower on the table than the FPA, you cannot have a 3rd memory board when you also have the FPA.

Fourth

The 2nd memory board in slot 3: The letter A in slot 3 indicates that the only position for the 2nd memory board is in slot 3.

Fifth

SCSI controller in slot 5: Whenever there is a choice, in this case slots 2 through 5, you must see which slots you have already filled. Slots 5 and 6 are left, but the letter D in slot 5 has a higher priority than letter E, so the board is placed in slot 5.

Sixth

2nd ethernet in slot 6: The 2nd ethernet is the lowest on the list of the products used in this example, so it is placed in the last slot available in the cardcage, represented by letter E in the table.

SCSI Adapter Information

C.1. Correct Identification of Adapters

Use the following notes and tables to determine if you are using the correct adapter assembly configuration.

1. The 501-1167 Sun-2 SCSI Adapter Assembly has "P2" bus connections and an external cable assembly. The Sun-3 SCSI controller is not supported in this adapter assembly. The Sun-2 adapter configuration is **only** for use in Sun-3/180/280 and Sun-4/280 systems. The only supported connection to this controller is the logic enclosure's integral 1/4 tape drive.

Using the Sun-2 SCSI adapter configuration in any other system package violates the SCSI bus specification. Sun Microsystems does **not** support such configurations.

2. The 501-1217 SCSI Assembly will not function with the internal SCSI subsystem in the Sun-3/160/260 or Sun-4/260. The internal SCSI subsystem interfaces through the J2/P1 and J2/P3 VMEbus connector. These signals are not connected on the 501-1217 assembly.
3. The 501-1138 SCSI Assembly will not function with the internal SCSI subsystem in the Sun-3/160/260 or Sun-4/260. The internal SCSI subsystem interfaces through the J2/P1 and J2/P3 VMEbus connector. These signals are not connected on the 501-1138 assembly.

For systems that do not use a SCSI host adapter, use the slot assignment charts based on systems "Using 501-1138 or 501-1217 SCSI Assembly".

The following tables supply specific information regarding usage of SCSI boards in various Sun products.

Table C-1 *Sun 3x2 Adapter Assemblies*

<i>Option #</i>	<i>Assy #</i>	<i>Adapter #</i>	<i>P2 A&C</i>	<i>SCSI Bus</i>
160A	501-1269	500-1059	yes	internal
160B	501-1191	500-1220	no	internal
160B	501-1191	500-1437	no	internal

Table C-2 *Sun 3x2 Adapter Assemblies With SCSI Host Adapter*

<i>Assy #</i>	<i>Adapter #</i>	<i>P2 A&C</i>	<i>SCSI Host</i>	<i>SCSI Bus</i>
501-1167	500-1059	yes	501-1045	external
501-1149	500-1059	yes	501-1045	internal
501-1138	500-1220	no	501-1045	external
501-1170	500-1059	yes	501-1236	internal
501-1217	500-1220	no	501-1236	external

Table C-3 *Sun Memory Boards With SCSI Host Adapter*

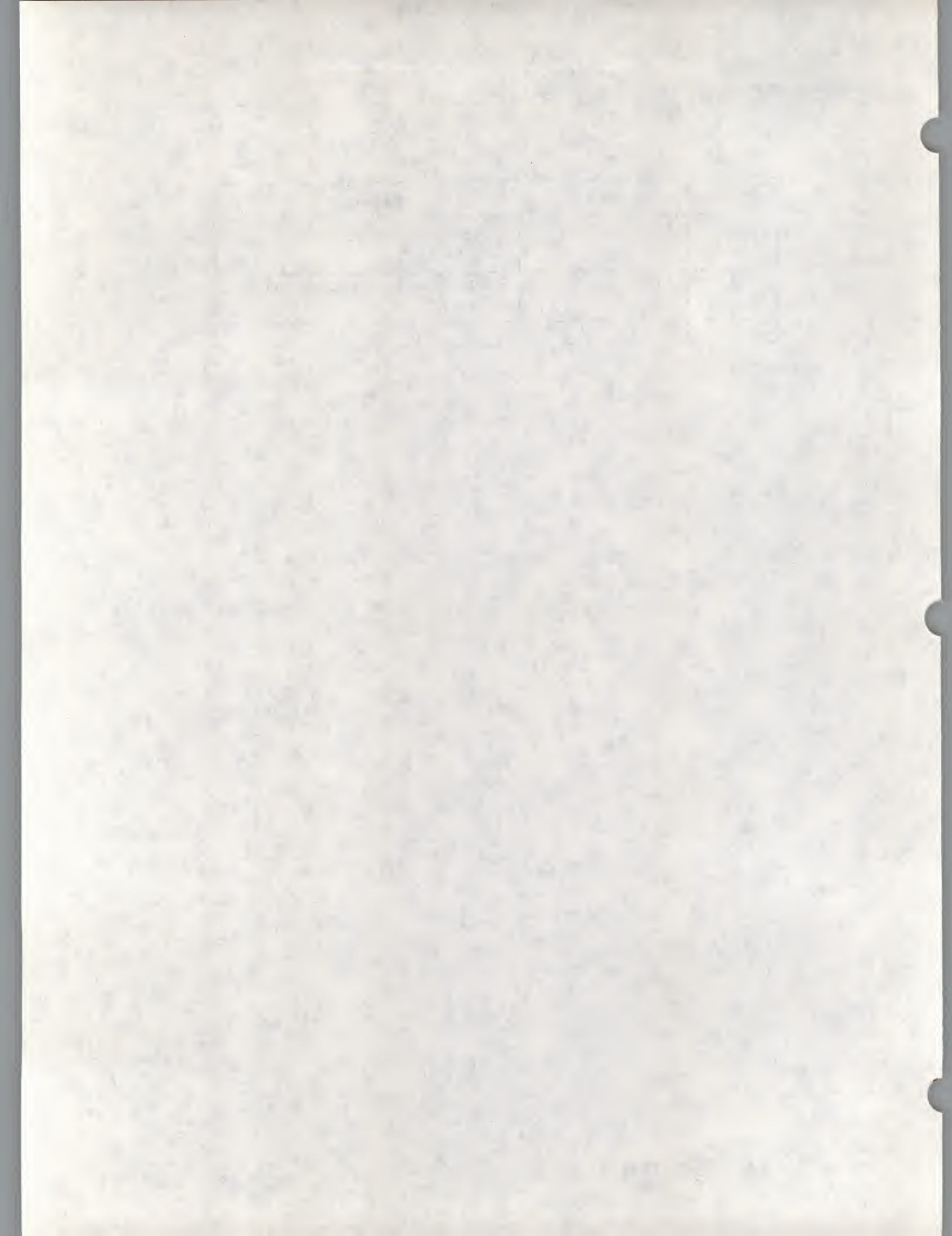
<i>OAssy #</i>	<i>Memory Board #</i>	<i>Description</i>	<i>SCSI Host</i>
501-1172	501-1121	3/75 0mb	501-1045
501-1147	501-1079	2/50 0mb	501-1045

Table C-4 *Sun Memory Boards that can use a SCSI Host Adapter*

<i>Memory Board #</i>	<i>Description</i>
501-1020	2/50 1mb
501-1046	2/50 2mb
501-1047	2/50 4mb
501-1067	2/50 3mb
501-1079	2/50 0mb
501-1111	3/75 2mb
501-1121	3/75 0mb
501-1122	3/75 4mb

Table 3-4 *Revision History*

<i>Revision</i>	<i>Date</i>	<i>Comments</i>
-01	10 October 1988	First review of this special slot assignment document.
A	1 December 1988	Release of this special slot assignment document.



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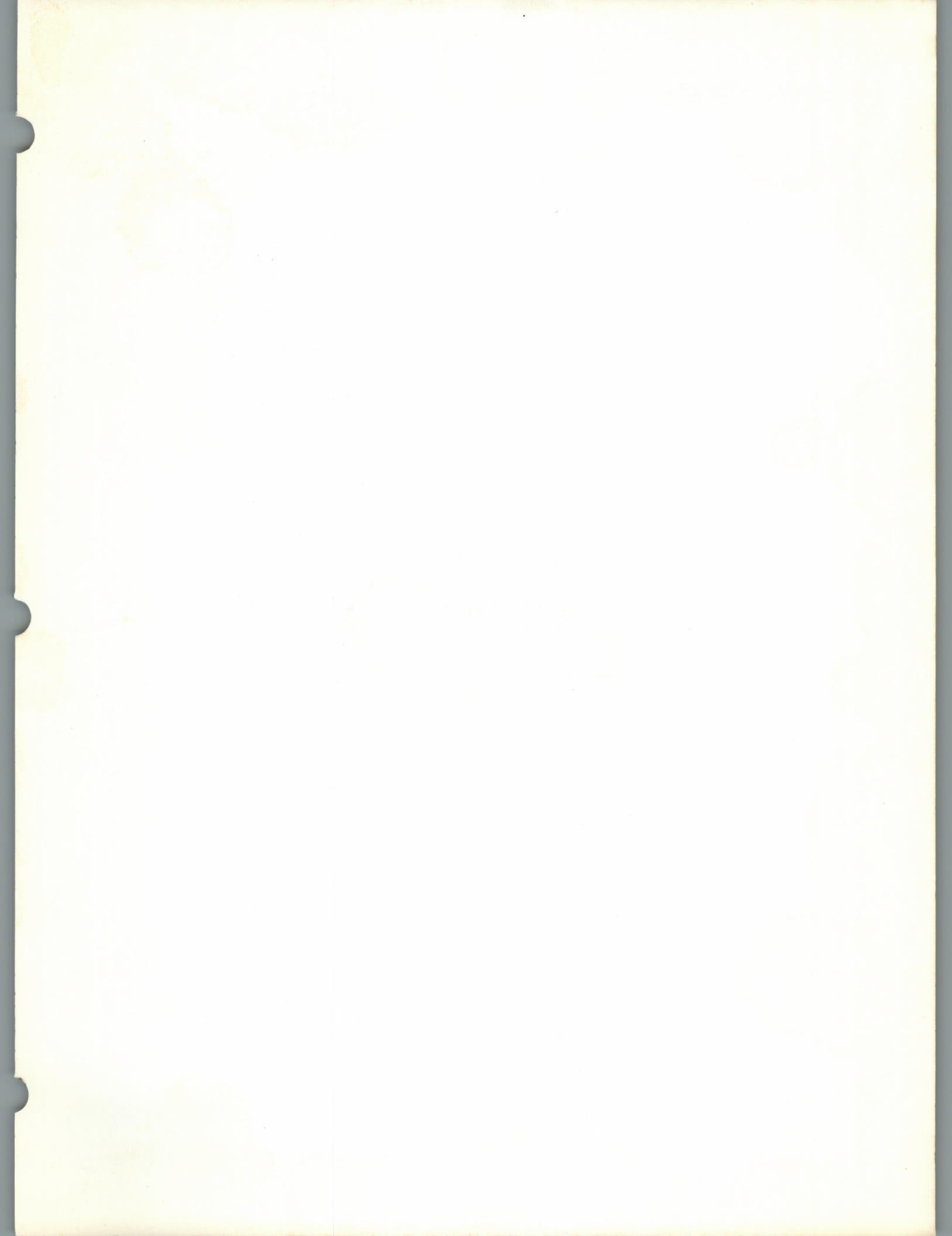
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